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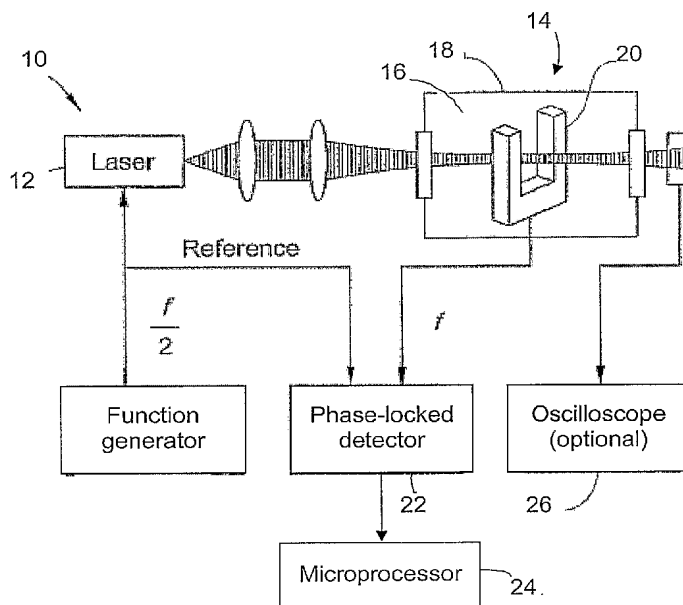
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(54) Title: SELECTIVITY ENHANCEMENT IN PHOTOACOUSTIC GAS ANALYSIS VIA PHASE-SENSITIVE DETECTION AT HIGH MODULATION FREQUENCY



(57) Abstract: A method for detecting a target fluid in a fluid sample comprising a first fluid and the target fluid using photoacoustic spectroscopy (PAS), comprises a) providing a light source configured to introduce an optical signal having at least one wavelength into the fluid sample; b) modulating the optical signal at a desired modulation frequency such that the optical signal generates an acoustic signal in the fluid sample; c) measuring the acoustic signal in a resonant acoustic detector; and d) using the phase of the acoustic signal to detect the presence of the target fluid.

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